
PROTECT RESOURCES. STRENGTHEN THE ECONOMY.

*Improving Efficiency in
Small and Medium-sized
Enterprises (SME's)*

*Andreas Kunsleben
Effizienz-Agentur NRW*

EFFIZIENZ
AGENTUR
NRW

ef^a+

EFFIZIENZ-AGENTUR NRW

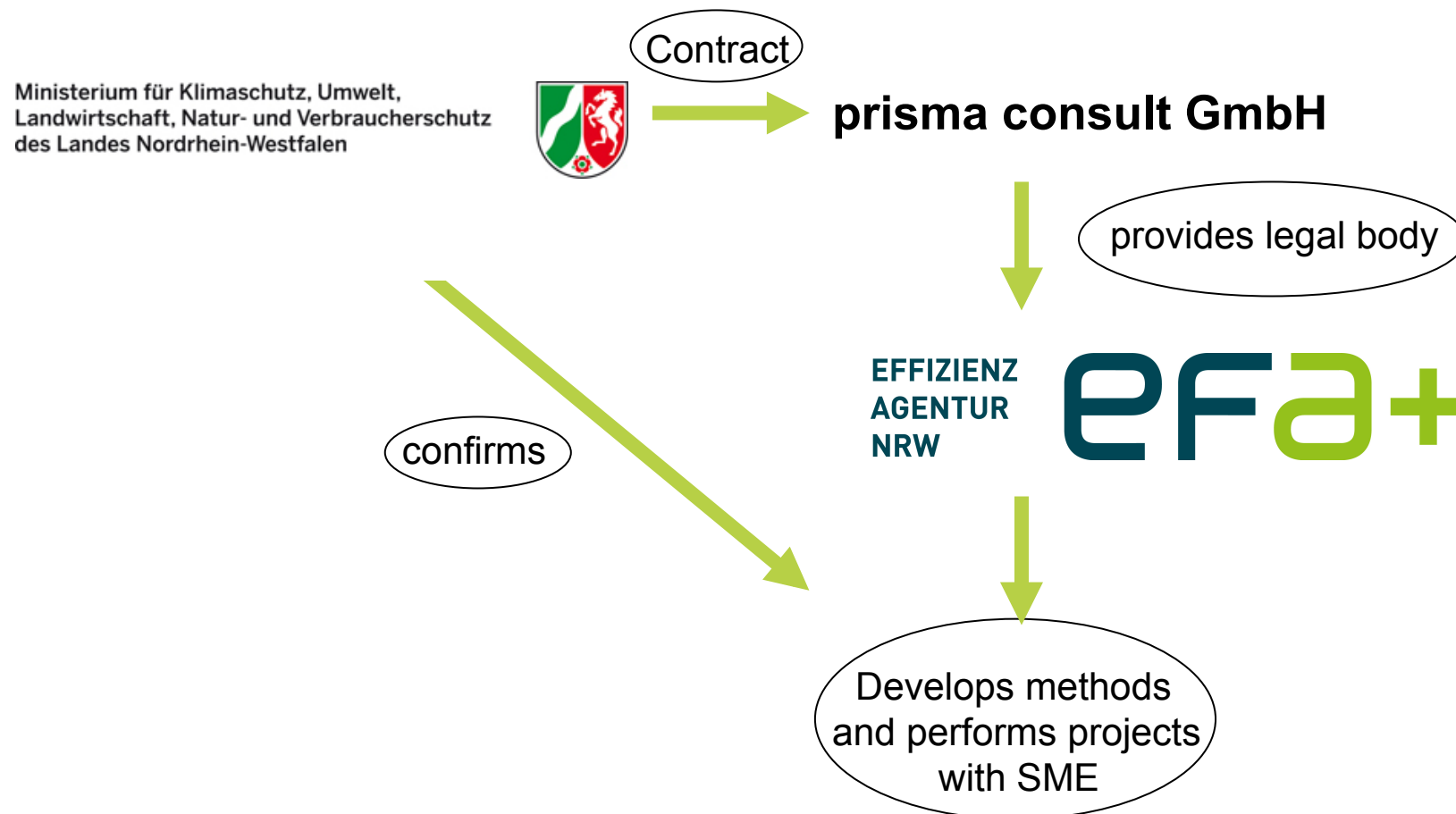
PARTNER FOR RESOURCE EFFICIENCY



- Founded by the Ministry of Environment of North-Rhine Westphalia
- **Objective**
Improve Competitiveness of Small and Medium sized Enterprises (SMEs) by supporting a strategy of sustainable growth
- **Approach**
Introduce Innovative Technologies, Methods and (Business-) Processes to SMEs that improve resource efficiency, avoid waste & hazardous emissions and deliver instant results
- over **1.500 Resource-Efficiency-Projects** in SMI since 2000
- 29 employees in Duisburg and 6 regional offices

EFFIZIENZ-AGENTUR NRW

SETUP



WORKING WITH SME

OUR SERVICE

Basic Approach

- Resource consumption as a cost factor and
- Reduction of resource consumption as a competitive advantage
- Process and Product Innovation as a Solution



Offer

- Competent and independent support with the first steps towards resource efficiency
- Advise on funding further progress

Structure of the consulting projects

3 Partners – 1 Project:

- an industrial producer or craftsmen as client
- and Effizienz-Agentur NRW as a coach, knowledge provider and financing partner
- a consulting company as contractor

Objective:

→ Delivering value by improved resource productivity



EFA-SERVICES

THE FIRST STEPS TO MORE RESOURCE EFFICIENCY



Material Flow Analysis

Objective: Implementing Cleaner Production Solutions



Resource Cost Accounting

Objective: Transparency regarding costs and business processes



Eco-Design

Objective: Creating “Greener Products” faster



Financing and Funding

Example: Recovery of Zinc Chloride in Fibre production



Vulkanfiber Fabrik Ernst Krüger GmbH & Co KG

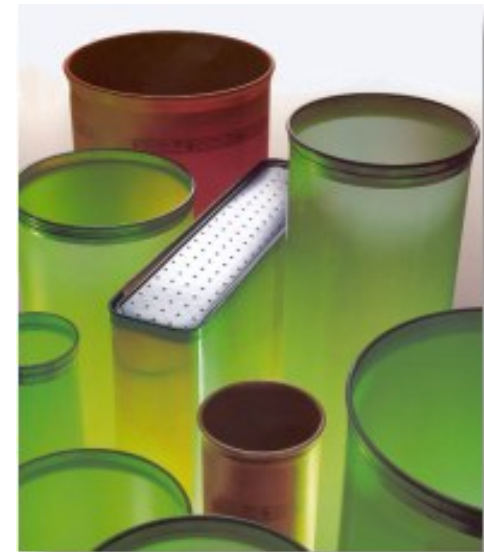
- 50 employees
- supplier of the automotive, electronics and textile industries produce
- products made of vulcanised fibre



What is Vulcanised Fibre?

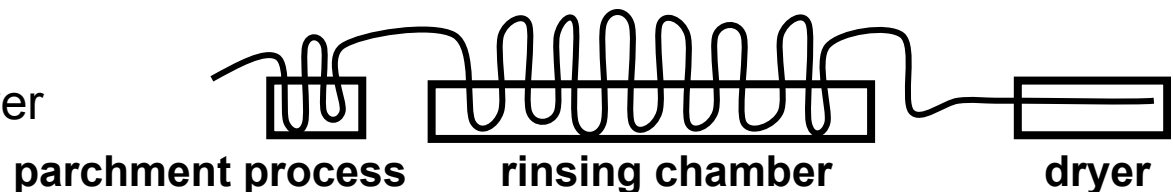
Vulcanised Fibre is a multipurpose material, fabricated from a special paper based on cotton and cellulose. Relying on renewable raw material, vulcanised fibre provides the following advantages:

- high strength combined with low weight
- good antistatic properties
- good electrical properties (spark resistant)



Manufacture of vulcanised fibre

- paper web is dipped in a concentrated zinc chloride solution
- surface of the single fibre is etched
- on the surface, so called hydrate cellulose is formed
- the paper mass is compressed and as a result of this, the individual fibres are compounded
- the paper web passes through the rinsing chamber, to rinse away the surplus zinc chloride
- after this it is cured in a dryer



Why clean technology?

The fluid in the rinsing chamber containing the surplus of Zinc Chloride had to be treated as waste water.

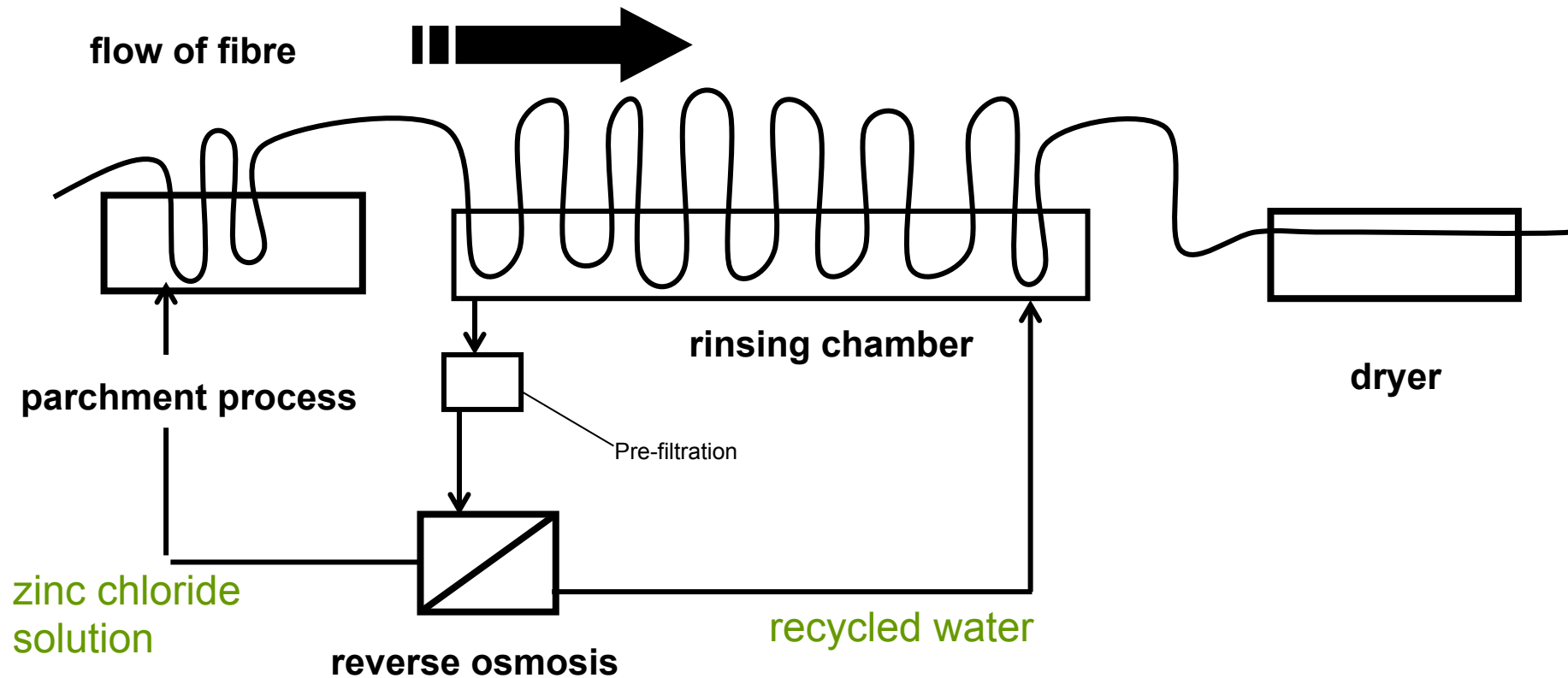
For over 10 years Vulkanfiber Krüger had been on the look-out for a solution:

- more cost-effective
- saving the valuable raw material and the water



A new, clean technology as a solution

Reversed osmosis (190.000 €) creates a closed loop process



The reversed osmosis



The figures of six years operating experience

- recovery of process-fluid: 25 m³/day
 - 100 % recovery of the surplus of Zinc Chloride
 - costs for the softening of process water are reduced
 - smooth and low-maintenance operation
 - ROI (Return on Invest) < 3 years
 - contrary to initial expectations, the service life of the membrane employed turned out to be twice as – with a positive impact on current operating costs
-

RESOURCE EFFICIENCY AND INNOVATION IN SME

CONCLUSION

Resource Efficiency in Processes and Products is a key to sustainable growth!

- Concepts, approaches and methods are available
- For the implementation, the need for tangible and independent support is particularly relevant for SMEs
- Programmes to support RE in SME should be available on a continuous base (no occasional calls)
- R&D must be connected to first industrial application or first reference in the addressed market

PROTECT RESOURCES.
STRENGTHEN THE ECONOMY.

Thank you very much!

Further information about the
Effizienz-Agentur NRW under:
www.cleanerproduction.info
www.efanrw.de

or get in touch under:

Tel.: +49 203/37879-30

Fax: +49 203/37879-44

eMail: efa@efanrw.de